Serial No. 09/676,696

REMARKS

This amendment is responsive to the Official Action dated September 9, 2002.

Claims 1 - 59 were pending in the application.

No claims were allowed.

Claims 2-37, 39-41 and 44-59 were withdrawn from consideration as being drawn to a non-elected invention.

Claims 1, 38, 42 and 43 were rejected under 35 USC §102(b).

Claims 1, 38, 42 and 43 have been canceled in favor of new claim 60.

Claim 60 is currently pending in the application.

Election/Restriction:

Applicant acknowledges the withdrawal of claim 2-37, 39-41 and 44-59.

Drawing Objection:

The drawings were objected to as lacking reference characters or having improper reference characters in Figures 9 and 10.

Replacement sheets for Figs. 9 and 10 are attached with revised reference characters.

Review and consideration of the substitute drawing sheets is respectfully solicited.

Specification:

The specification was objected to as having several improper abbreviations and other minor grammatical errors.

Replacement paragraphs have been entered as above.

With regard to page 1, line 35 "TO". The designation TO has been used in the industry since at least as early as 1996, and in fact is referenced in the cited patent DeAndrea as a "TO assembly". No change is believed to be necessary.

With regard to Page 8, line 29, the deletion of the comma is believed to be unnecessary.

Review of the specification amendments, and approval of the changes is respectfully solicited.

Claims Rejections under 35 USC §102:

Claims 1 38, 42, and 43 were rejected under 35 USC §102(b) as being anticipated by DeAndrea et al '468.

As indicated above, claims 1, 38, 42 and 43 have been canceled in favor of new claim 60 which is believed to better define the invention.

Brief Discussion of the cited references and new claim:

The claimed invention in this application addresses a problem that occurs in the packaging of VCSELs that has not been touched upon in the prior art. One of the major advantages of VCSELs as lasers is the fact that they can be tested and characterized on-wafer to determine their suitability for packaging. This can be a great cost advantage. Unfortunately, some packaging procedures, such as encapsulation, necessarily change the device characteristics of typical VCSELs, making it difficult to predict the performance of packaged devices from the on-wafer performance.

This is a major reason post-assembly transparent encapsulation was not readily seen in the prior art. DeAndrea discloses an optoelectronic device with a surface mounted device, and a mirror for changing the direction of the light. However, it is clear that DeAndrea did not contemplate encapsulation of the surface mounted device after assembly of the device with the circuit board. All of the embodiments disclosed in DeAndrea illustrate an arrangement where the mirror and fiber cable coupling device are mounted above the optoelectronic device. However, there is no embodiment which details encapsulation.

In research related to this application, such as for example, as disclosed in co-pending US Patent Application No. 60/125,230 VCSEL POWER MONITORING SYSTEM INCORPORATING A TILTED-WINDOW DESIGN (now US Application No. 09/531,442), the contents of which were incorporated by reference, the applicant has developed techniques which will readily allow post-assembly encapsulation of optoelectronic devices without changing their operational characteristics.

Surprisingly, the deposition of a pre-calculated thickness of just one extra layer of optically transparent material (an encapsulation medium matching material), atop the VCSEL, can adjust the reflectivity of the top VCSEL mirror, so as to make the on-wafer performance the same as the packaged performance. Furthermore, the deposition of two different extra layers of optically transparent materials, atop the VCSEL, can adjust the reflectivity of the top VCSEL mirror, so as to make the on-wafer performance the same as the packaged performance, with both conforming to tight predetermined specifications. The modifications to the VCSEL devices therefore allow the devices to be encapsulated in an optically transparent encapsulation medium without affecting their operational characteristics as measured during on-wafer testing.

The present claim 60 defines the optoelectronic package as including an optically transparent fiber coupling assembly having a body portion that encapsulates the optoelectronic device. DeAndrea does not disclose encapsulation of the device nor integration of the encapsulation and the fiber coupling assembly as a single unit. Furthermore, it would not have been obvious to encapsulate the optoelectronic device of DeAndrea for the reasons indicated above, nor would it have been obvious to provide a fiber coupling assembly that also served as an encapsulation body.

Accordingly, claim 60 is believed to define patentable subject matter in view of the prior art cited.

Claim 60 is thus believed to be in condition for allowance and the application now ready for issue.

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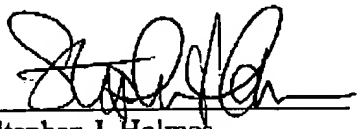
Corresponding action is respectfully solicited.

PTO is authorized to charge any additional fees incurred as a result of the filing hereof or credit any overpayment to our account #02-0900.

Respectfully submitted,



Stephen J. Holmes
Reg. No. 34,621

BARLOW, JOSEPHS & HOLMES, Ltd.
101 Dyer Street
5th Floor
Providence, RI 02903
401-273-4446 (tel)
401-273-4447 (fax)
sjh@barjos.com

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